



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2018-0553; Product Identifier 2017-NM-138-AD; Amendment 39-19446; AD 2018-20-12]**

**RIN 2120-AA64**

**Airworthiness Directives; Bombardier, Inc., Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), Department of Transportation (DOT).

**ACTION:** Final rule.

**SUMMARY:** We are adopting a new airworthiness directive (AD) for certain Bombardier, Inc., Model DHC-8-102, -103, and -106 airplanes, Model DHC-8-200 series airplanes, and Model DHC-8-300 series airplanes. This AD was prompted by reports of arcing and smoke emanating from the windshield, caused by loose or damaged windshield heater terminal lugs. This AD requires revising the maintenance or inspection program to incorporate maintenance review board (MRB) tasks for general visual inspections of the windshield moisture seal. This AD also requires re-torquing the windshield heater terminal lugs, applying a coating to the windshield heater screw heads, doing a chemical cleaning of the wiring and components, doing a visual inspection of the wiring and components, doing an operational test of the pilot's and co-pilot's windshield heating system, and repair if necessary. We are issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** For service information identified in this final rule, contact Bombardier, Inc., Q-Series Technical Help Desk, 123 Garratt Boulevard, Toronto, Ontario M3K 1Y5, Canada; telephone 416-375-4000; fax 416-375-4539; email [thd.qseries@aero.bombardier.com](mailto:thd.qseries@aero.bombardier.com); Internet <http://www.bombardier.com>. You may view this service information at the FAA, Transport Standards Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0553.

#### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0553; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, the regulatory evaluation, any comments received, and other information. The address for Docket Operations (phone: 800-647-5527) is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** John P. DeLuca, Aerospace Engineer,  
Avionics and Administrative Services Section, FAA, New York ACO Branch, 1600  
Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7369; fax  
516-794-5531; email 9-avs-nyaco-cos@faa.gov.

**SUPPLEMENTARY INFORMATION:**

**Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain Bombardier, Inc., Model DHC-8-102, -103, and -106 airplanes, Model DHC-8-200 series airplanes, and Model DHC-8-300 series airplanes. The NPRM published in the Federal Register on July 6, 2018 (83 FR 31493). The NPRM was prompted by reports of arcing and smoke emanating from the windshield, caused by loose or damaged windshield heater terminal lugs. The NPRM proposed to require revising the maintenance or inspection program to incorporate MRB tasks for general visual inspections of the windshield moisture seal. The NPRM also proposed to require re-torquing the windshield heater terminal lugs, applying a coating to the windshield heater screw heads, doing a chemical cleaning of the wiring and components, doing a visual inspection of the wiring and components, doing an operational test of the pilot's and co-pilot's windshield heating system, and repair if necessary.

We are issuing this AD to address loose terminal lugs and terminal lugs damaged due to fluid ingress between the windshields and side window posts, which could lead to burning of the lugs and cracking of the windshields, and could ultimately cause a loss of cabin pressure, resulting in an emergency descent.

Transport Canada Civil Aviation (TCCA), which is the aviation authority for Canada, has issued Canadian AD CF-2017-25, dated July 31, 2017 (referred to after this as the Mandatory Continuing Airworthiness Information, or “the MCAI”), to correct an unsafe condition for certain Bombardier, Inc., Model DHC-8-102, -103, and -106 airplanes, Model DHC-8-200 series airplanes, and Model DHC-8-300 series airplanes.

The MCAI states:

There have been several reports of arcing and smoke emanating from the windshields. Investigation of these incidents revealed that de-icing fluid and water could enter between the windshields and side window posts, leading to possible damage of the windshield heater terminal lugs creating arcing and smoke. In addition, investigation also revealed that the windshield heater terminal lugs tend to loosen over time. Loose terminal lugs could also have a similar effect of arcing and smoke. Both events could lead to burning of the lugs and, due to the excessive heat, cracking of the windshields. If not corrected, these conditions could cause a loss of cabin pressure resulting in an emergency descent.

You may examine the MCAI in the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0553.

## **Comments**

We gave the public the opportunity to participate in developing this final rule. We have considered the comment received. The Air Line Pilots Association, International (ALPA) indicated its support for the NPRM.

## **Conclusion**

We reviewed the relevant data, considered the comment received, and determined that air safety and the public interest require adopting this final rule as proposed, except for minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM for addressing the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

### **Related Service Information under 1 CFR part 51**

Bombardier has issued Service Bulletin 8-30-41, Revision A, dated March 24, 2017. This service information describes procedures for re-torquing the windshield heater terminal lugs and applying Humiseal coating to the screw heads of the windshield heater, doing a chemical cleaning and general visual inspection of the wiring and components, and doing an operational test of the windshield heating system.

Bombardier has also issued the following service information, which describes airworthiness limitation tasks for a general visual inspection of the windshield moisture seal. These documents are distinct since they apply to different airplane models.

- de Havilland Inc. Dash 8 Series 100 Maintenance Task Card Task Number 5610/01, “General Visual Inspection of the Windshield Moisture Seal,” dated August 5, 2017.

- de Havilland Inc. Dash 8 Series 200 Maintenance Task Card Task Number 5610/01, “General Visual Inspection of the Windshield Moisture Seal,” dated August 5, 2017.

- de Havilland Inc. Dash 8 Series 300 Maintenance Task Card Task Number 5610/01, “General Visual Inspection of the Windshield Moisture Seal,” dated March 15, 2017

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

### **Costs of Compliance**

We estimate that this AD affects 63 airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

#### **Estimated costs for required actions<sup>\*</sup>**

<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
3 work-hours X \$85 per hour = \$255	\$0	\$255	\$16,065

<sup>\*</sup> Table does not include estimated costs for revising the maintenance or inspection program.

We have determined that revising the maintenance or inspection program takes an average of 90 work-hours per operator, although we recognize that this number may vary from operator to operator. In the past, we have estimated that this action takes 1 work-hour per airplane. Since operators incorporate maintenance or inspection program changes for their affected fleet(s), we have determined that a per-operator estimate is more accurate than a per-airplane estimate. Therefore, we estimate the total cost per operator to be \$7,650 (90 work-hours x \$85 per work-hour).

We have received no definitive data that would enable us to provide cost estimates for the on-condition actions specified in this AD.

### **Authority for this Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator.

Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

This AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to transport category airplanes and associated appliances to the Director of the System Oversight Division.

### **Regulatory Findings**

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

(1) Is not a "significant regulatory action" under Executive Order 12866,

(2) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),

(3) Will not affect intrastate aviation in Alaska, and

(4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

#### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

#### **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

#### **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

**2018-20-12 Bombardier, Inc.:** Amendment 39-19446; Docket No. FAA-2018-0553;

Product Identifier 2017-NM-138-AD.

#### **(a) Effective Date**

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

#### **(b) Affected ADs**

None.



**(c) Applicability**

This AD applies to Bombardier, Inc., Model DHC-8-102, -103, -106, -201, -202, -301, -311, and -315 airplanes, certificated in any category, serial numbers 003 through 672 inclusive.

**(d) Subject**

Air Transport Association (ATA) of America Code 30, Ice and rain protection.

**(e) Reason**

This AD was prompted by reports of arcing and smoke emanating from the windshield, caused by loose or damaged windshield heater terminal lugs. We are issuing this AD to address loose terminal lugs and terminal lugs damaged due to fluid ingress between the windshields and side window posts, which could lead to burning of the lugs and cracking of the windshields, and could ultimately cause a loss of cabin pressure, resulting in an emergency descent.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Maintenance or Inspection Program Revision**

Within 30 days after the effective date of this AD, revise the existing maintenance or inspection program, as applicable, to incorporate the applicable task identified in paragraphs (g)(1), (g)(2), and (g)(3) of this AD into the applicable program support manual (PSM) identified in table 1 to paragraph (g) of this AD, which is included in the existing maintenance or inspection program. The initial compliance time for the tasks are within 1,600 flight hours or 12 months, whichever occurs first after the effective date of this AD.

(1) de Havilland Inc. Dash 8 Series 100 Maintenance Task Card Task Number 5610/01, “General Visual Inspection of the Windshield Moisture Seal,” dated August 5, 2017.

(2) de Havilland Inc. Dash 8 Series 200 Maintenance Task Card Task Number 5610/01, “General Visual Inspection of the Windshield Moisture Seal,” dated August 5, 2017.

(3) de Havilland Inc. Dash 8 Series 300 Maintenance Task Card Task Number 5610/01, “General Visual Inspection of the Windshield Moisture Seal,” dated March 15, 2017.

**Table 1 to paragraph (g) of this AD – *PSM to update***

<b>Airplane Model</b>	<b>Maintenance Requirements Manual (MRM)</b>
DHC-8-102, -103, and -106	PSM 1-8-7
DHC-8-201 and -202	PSM 1-82-7
DHC-8-301, -311, and -315	PSM 1-83-7

**(h) No Alternative Actions or Intervals**

After the maintenance or inspection program has been revised as required by paragraph (g) of this AD, no alternative actions (e.g., inspections) or intervals may be used unless the actions or intervals are approved as an alternative method of compliance (AMOC) in accordance with the procedures specified in paragraph (k)(1) of this AD.

**(i) Cleaning, Inspection, Re-torquing, Sealant Application, and Operational Test**

Within 8,000 flight hours or 60 months, whichever occurs first after the effective date of this AD: Perform a chemical cleaning of the wiring and components, do a general visual inspection of the wiring and components for signs of cracking, erosion, wear, or other damage, re-torque the windshield heater terminal lugs, apply Humiseal coating to

the screw heads of the windshield heater, and do an operational test of the pilot's and co-pilot's windshield heating system, in accordance with the Accomplishment Instructions of Bombardier Service Bulletin 8-30-41, Revision A, dated March 24, 2017. If the operational test fails, before further flight, do corrective actions, repeat the test, and do applicable corrective actions until the operational test is passed. If any cracking, erosion, wear, or other damage is found, before further flight, repair using a method approved by the Manager, New York ACO Branch, FAA; or Transport Canada Civil Aviation (TCCA); or Bombardier, Inc.'s TCCA Design Approval Organization (DAO). If approved by the DAO, the approval must include the DAO-authorized signature.

**(j) Credit for Previous Actions**

This paragraph provides credit for the actions required by paragraph (i) of this AD, if those actions were performed before the effective date of this AD using Bombardier Service Bulletin 8-30-41, dated March 31, 2016.

**(k) Other FAA AD Provisions**

The following provisions also apply to this AD:

(1) *Alternative Methods of Compliance (AMOCs)*: The Manager, New York ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to ATTN: Program Manager, Continuing Operational Safety, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7300; fax 516-794-5531. Before using any approved AMOC, notify your appropriate principal

inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(2) *Contacting the Manufacturer:* For any requirement in this AD to obtain corrective actions from a manufacturer, the action must be accomplished using a method approved by the Manager, New York ACO Branch, FAA; or TCCA; or Bombardier, Inc.'s TCCA DAO. If approved by the DAO, the approval must include the DAO-authorized signature.

**(l) Related Information**

(1) Refer to Mandatory Continuing Airworthiness Information (MCAI) Canadian Airworthiness Directive CF-2017-25, dated July 31, 2017, for related information. This MCAI may be found in the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0553.

(2) For more information about this AD, contact John P. DeLuca, Aerospace Engineer, Avionics and Administrative Services Section, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7369; fax 516-794-5531; email 9-avs-nyaco-cos@faa.gov.

(3) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (m)(3) and (m)(4) of this AD.

**(m) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless this AD specifies otherwise.

(i) Bombardier Service Bulletin 8-30-41, Revision A, dated March 24, 2017.

(ii) de Havilland Inc. Dash 8 Series 100 Maintenance Task Card Task Number 5610/01, “General Visual Inspection of the Windshield Moisture Seal,” dated August 5, 2017.

(iii) de Havilland Inc. Dash 8 Series 200 Maintenance Task Card Task Number 5610/01, “General Visual Inspection of the Windshield Moisture Seal,” dated August 5, 2017.

(iv) de Havilland Inc. Dash 8 Series 300 Maintenance Task Card Task Number 5610/01, “General Visual Inspection of the Windshield Moisture Seal,” dated March 15, 2017.

(3) For service information identified in this AD, contact Bombardier, Inc., Q-Series Technical Help Desk, 123 Garratt Boulevard, Toronto, Ontario M3K 1Y5, Canada; telephone 416-375-4000; fax 416-375-4539; email [thd.qseries@aero.bombardier.com](mailto:thd.qseries@aero.bombardier.com); Internet <http://www.bombardier.com>.

(4) You may view this service information at the FAA, Transport Standards Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195. (5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Des Moines, Washington, on September 20, 2018.

John P. Piccola, Acting Director,  
System Oversight Division,  
Aircraft Certification Service.

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